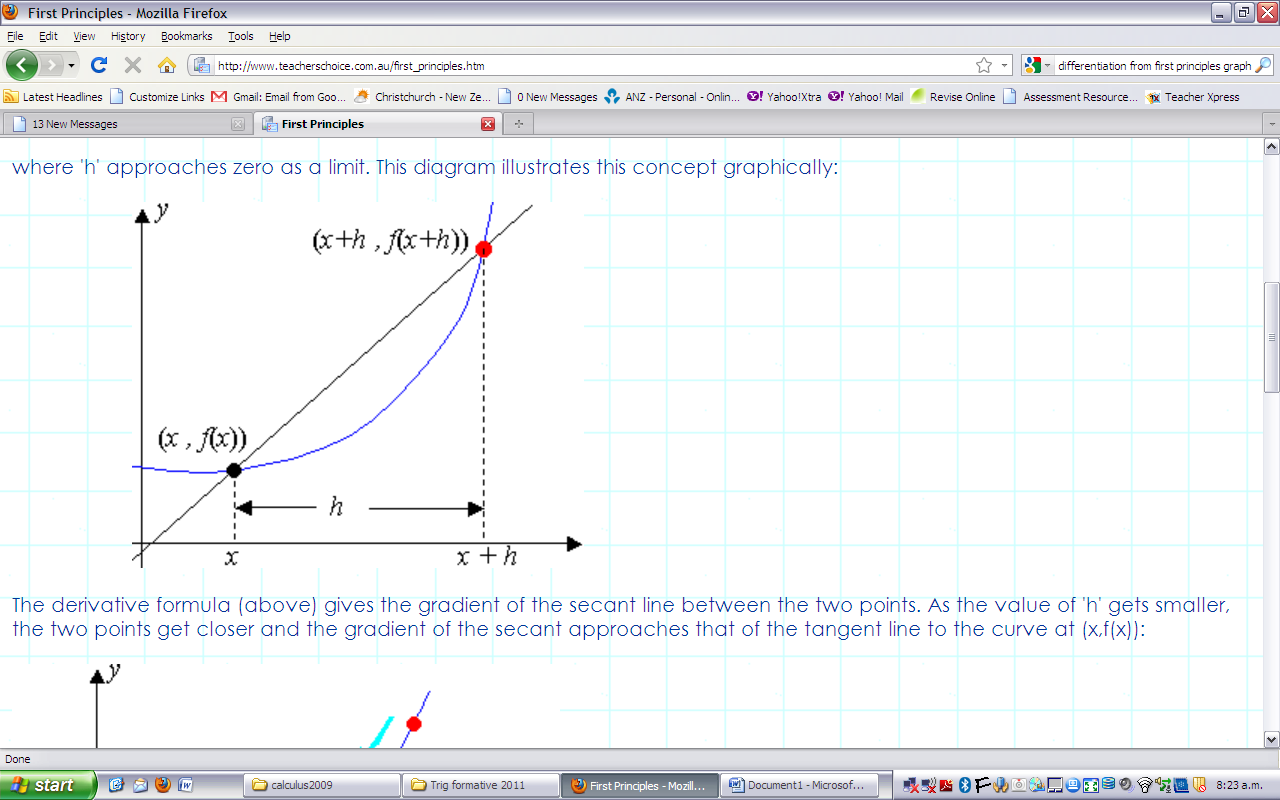
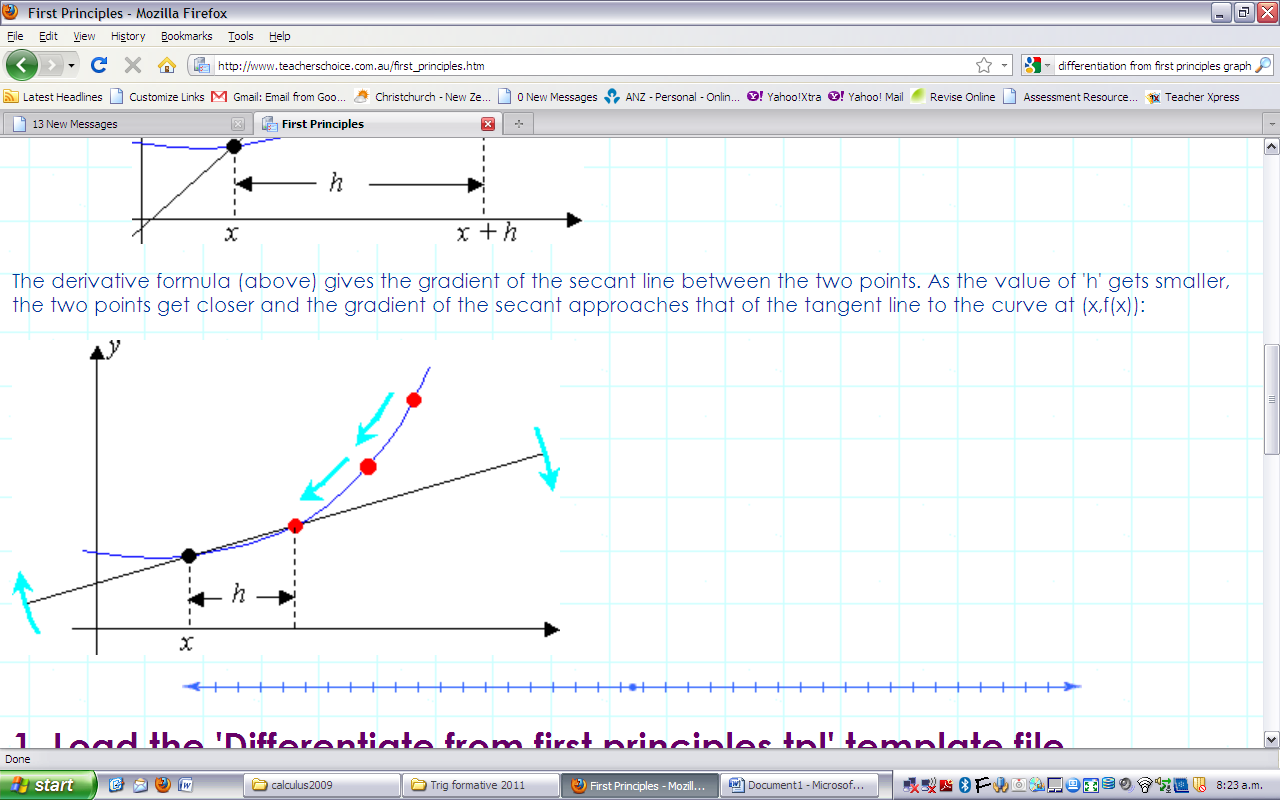
**Differentiation from First Principles**

* Differentiation gives the gradient function of a curve.
* Differentiation from **first principles** is the long method that works from the

basic principle that the gradient of a tangent is .



* From the diagram above, .
* If we let get so small that it is almost zero, this will give us the gradient function

of the curve and thus the gradient of the tangent to the curve at a particular point.

* Therefore, the gradient function of a curve can be found from first principles using

the rule:

1) Find the gradient function of using first principles.

2) Find the gradient function of using first principles.